

of the sky, illustrating very directly the theory that attributes the blue of the sky to scattering by the molecules of air.\*

(4) The scattered light is almost completely polarised.

[*Note added April 19, 1918.*—In examining the literature, I regret that I overlooked the importance of a paper by Cabannes ('Comptes Rendus,' vol. 160, p. 62, January 11, 1915), though I had consulted a somewhat meagre abstract of it. He detected the scattering by pure air, and made approximate measurements of its amount. This paper has, however, been allowed to stand unaltered, as the method of treatment is independent, and several important points, such as the polarisation of the scattered light and the effect of different gases, are not mentioned by Cabannes.]

#### DESCRIPTION OF PLATE.

1. Beam in dust-free air viewed transversely. Ultra-violet filter. The ova outline is light diffused by walls of vessel. The beam is seen passing across this oval.
2. Similar conditions, except that a yellow filter is substituted. Beam very much fainter relative to light diffused by walls of vessel.
3. Spectrum of light from mercury lamp scattered by dust-free air and showing ultra-violet lines 2536 and 2654, but not the yellow and green lines.
4. Spectrum of mercury lamp direct, showing yellow line 5890 and green line 5460, but not the far ultra-violet lines.
5. Beam in pure air through a double image prism. Vibrations in upper image vertical, in lower horizontal. The beam is invisible in the lower image, showing that polarisation of the scattered light is nearly complete.
6. Similar photograph with dusty air. The beams are very strong, and comparable in intensity.

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\* Tyndall obtained the blue by means of fine-grained fogs, precipitated from organic vapours. This was a valuable contribution, but his fogs were of course both chemically and physically very different from dust-free air.

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#### *The Formation of Nitrites from Nitrates in Aqueous Solution by the Action of Sunlight, and the Assimilation of the Nitrites by Green Leaves in Sunlight.*

By BENJAMIN MOORE, D.Sc., F.R.S.

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#### *Action of Light Rays on Organic Compounds, and the Photo-synthesis of Organic from Inorganic Compounds in Presence of Inorganic Colloids.*

By BENJAMIN MOORE, D.Sc., F.R.S., and T. A. WEBSTER.

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